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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/654,038	09/01/2000	ICHIRO TANAKA	684.3067	6981

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EXAMINER

ROUHANIAN, MINOO K

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 09/23/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/654,038

Applicant(s)

TANAKA, ICHIRO

Examiner

Minoo Rouhanian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Areas identified as S1 and S3 and S4 on page 17, lines 2, 6, and 24 of the specifications are not shown on the drawings. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The flow chart in Figure 22 and 23 are not disclosed in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For example, "as a reference" in claim 2, or "an etching mask formed by a resist" in claim 10.
5. The term "two-dimensional phase type element" in claims 1-3 and 13 and the term "one of a phase type computer generated hologram" in claim 12 are relative terms which render the

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claims indefinite. The term "type" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For examination of this application this phrase was replaced with "a photomask".

6. While applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The term "contains" in claim 8 is used by the claim to mean "is made of," while the accepted meaning is "to have within".

7. Claim 1 provides for the use of alignment, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 1 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

8. Claims 2-15 are read as following for purpose of understanding and examination of this application:

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The term "a two dimensional phase type element" is replaced with "a photomask"

The term "a first etching mask" is omitted.

The term "using the mask as reference" is replaced with "using the checkered pattern".

The term "etching mask" is replaced with "pattern"

The term "an etching mask formed by resist" in claim 10 is omitted

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 2 and 3 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by

Sugawara (U.S. Patent 5,487,963).

Sugawara disclose a phase shifting mask which comprises a transparent substrate, a light shielding area formed on the transparent substrate, a plurality of first light transmission areas of a rectangular shape patterned on the transparent substrate, and a plurality of second light transmission areas patterned in an alternate relationship in two perpendicular directions on the transparent substrate, the second light transmission areas being constructed so that light having transmitted therethrough intensifies the intensity of light having transmitted through the first light transmission areas, the second light transmission areas having a substantially same profile as that of the first light transmission areas (Col. 2, lines 29-38 and as shown on Figure 1). The first light transmission areas are formed as ordinary light transmission areas while the second light transmission areas are formed as phase shifting areas by etching the substrate (Col. 4, lines 10-14).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sugawara** (U.S. Patent 5,487,963) in view of **Nagano et al.** (U.S. Patent 5,455,116).

The teaching of **Sugawara** as applied above is included herein.

Sugawara does not teach multiple levels of metal layers on the same mask, nor the optical proximity effect correction pattern, and nor the use of the mask as a molding element.

Nagano et al. teach an etching process including, for example, a process which comprises adhering a metal foil or a metal sheet such as aluminum or chromium onto the supporting layer, subjecting the metal foil or the metal sheet to a photoresist process or a printing process to form an etching resist layer, and etching away an exposed metal area not forming a resist layer (Col. 6, lines 14-20 and lines 49-53). The pattern of the metallic pattern layer may comprise one pattern unit or may comprise ones formed by arranging a plurality of pattern units, for example, in lattice pattern, checkered pattern, or stripe pattern (Col. 7, lines 45-49).

The use of optical proximity effect correcting pattern is well known in the art to minimize deviation from the desired pattern. The use of the mask would depend on the pattern, circuitry, and structural designed of the mask.

It would have been obvious to one having ordinary skill in the art at the time of the invention to combine the teaching of **Sugawara** for making the phase shift mask with **Nagano et al.** for use of multiple metal layers and multiple etching processes. The motivation for doing so would have been to etch the desired area by using a different metal layer and possibly etching media.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minoo Rouhanian whose telephone number is 703-605-0510. The examiner can normally be reached on 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9311 for regular communications and 703-872-9310 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

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mkr

September 19, 2002

A handwritten signature in black ink, appearing to read "S. Rosasco", written in a cursive style.

S. ROSASCO
PRIMARY EXAMINER